

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A method for facilitating communications between a network node and a Head End of an access network, the access network including a plurality of nodes which communicate with the Head End via at least one upstream channel and at least one downstream channel, the at least one downstream channel including a first downstream channel and a second downstream channel, the method comprising:

receiving a first communication from the Head End via the first downstream channel, said first communication including a request to perform a dynamic channel change operation, said dynamic channel change (DCC) request including a request to perform a downstream channel change operation;

responding to the dynamic channel change request by implementing the downstream channel change operation;

receiving a second communication from the Head End via the second downstream channel; and

communicating with the Head End using data received on the second downstream channel.

2. (original) The method of claim 1 wherein implementing the dynamic channel change operation comprises switching from the first downstream channel to the second downstream channel to receive communications from the Head End.

3. (original) The method of claim 1 further comprising communicating with the Head End using data received on the first downstream channel prior to performing the dynamic channel change operation.

4. (original) The method of claim 2 wherein implementing the dynamic channel change operation further comprises determining whether said second downstream channel is currently being used for receiving communications from the Head End.

5. (original) The method of claim 2 further comprising transmitting a dynamic channel change response to the Head End in response to receiving the dynamic channel change request.

6. (original) The method of claim 2 wherein the downstream channel change operation is implemented at the network node.

7. (original) The method of claim 1, wherein the method further comprises:
determining whether data transmitted at the Head End is successfully received on the second downstream channel; and
switching from the second downstream channel to the first downstream channel in response to a determination that data transmitted at the Head End can not be successfully received on the second downstream channel.

8. (original) The method of claim 1 wherein said access network is a wireless network.

9. (original) The method of claim 1 wherein said access network is a cable network, said plurality of nodes are cable modems, and wherein said Head End comprises a Cable Modem Termination System (CMTS).

10. (original) The method of claim 1 further comprising:
receiving a request from the Head End to switch from a first upstream channel to a second upstream channel; and
switching to said second upstream channel and said second downstream channel at substantially the same time.

11. (original) The method of claim 10 further comprising:
switching from a first upstream channel to a second upstream channel for transmitting data to the Head End; and
switching from the first downstream channel to the second downstream channel for receiving data from the Head End.

12. (original) The method of claim 10 wherein the switching of the upstream and downstream channels results in a switching between a first domain and a second domain of the access network.

13. (original) The method of claim 12 further comprising initiating a domain registration procedure after successfully switching the upstream and downstream channels.

14. (original) The method of claim 13 further comprising initiating a ranging procedure after successfully switching the upstream and downstream channels.

15. (original) The method of claim 10 wherein the first and second downstream channels are not in synchronization.

Claims 16-30 cancelled.

31. (original) A system for facilitating communications between a network node and a Head End of an access network, the access network including a plurality of nodes, the system comprising:

- a first network node in communication with the Head End;

- the first node including at least one interface configured or designed to communicate with the Head End via at least one upstream channel and at least one downstream channel;

- the interface being further configured or designed to receive a first communication from the Head End via a first downstream channel, said first communication including a request to perform a dynamic channel change operation, said dynamic channel change (DCC) request including a request to perform a downstream channel change operation;

- the first node being configured or designed to respond to the dynamic channel change request by implementing the downstream channel change operation;

- the interface being further configured or designed to receive a second communication from the Head End via a second downstream channel; and

- the first node being configured or designed to communicate with the Head End using data received on the second downstream channel.

32. (original) The system of claim 31 wherein the first node is further configured or designed to implement the dynamic channel change operation by switching from the first downstream channel to the second downstream channel to receive communications from the Head End.

33. (original) The system of claim 31 wherein the first node is further configured or designed to communicate with the Head End using data received on the first downstream channel prior to performing the dynamic channel change operation.

34. (original) The system of claim 32 wherein the first node is further configured or designed to determine whether said second downstream channel is currently being used for receiving communications from the Head End.

35. (original) The system of claim 32 wherein the first node is further configured or designed to transmit a dynamic channel change response to the Head End in response to receiving the dynamic channel change request.

36. (original) The system of claim 31, wherein the first node is further configured or designed to determine whether data transmitted at the Head End is successfully received on the second downstream channel; and

wherein the first node is further configured or designed to switch from the second downstream channel to the first downstream channel in response to a determination that data transmitted at the Head End can not be successfully received on the second downstream channel.

37. (original) The system of claim 31 wherein said access network is a wireless network.

38. (original) The system of claim 31 wherein said access network is a cable network, said first node is a cable modem, and wherein said Head End comprises a Cable Modem Termination System (CMTS).

39. (original) The system of claim 31 wherein the first node is further configured or designed to receive a request from the Head End to switch from a first upstream channel to a second upstream channel; and

wherein the first node is further configured or designed to switch to said second upstream channel and said second downstream channel at substantially the same time.

40. (original) The system of claim 39 wherein the first node is further configured or designed to switching from a first upstream channel to a second upstream channel to transmit data to the Head End; and

wherein the first node is further configured or designed to switch from the first downstream channel to the second downstream channel to receive data from the Head End.

41. (original) The system of claim 39 wherein the switching of the upstream and downstream channels results in a switching between a first domain and a second domain of the access network.

42. (original) The system of claim 41 wherein the first node is further configured or designed to initiate a domain registration procedure after successfully switching the upstream and downstream channels.

43. (original) The system of claim 42 wherein the first node is further configured or designed to initiate a ranging procedure after successfully switching the upstream and downstream channels.

44. (original) The system of claim 39 wherein the first and second downstream channels are not in synchronization.

Claims 45-57 cancelled.

58. (original) A computer program product for facilitating communications between a network node and a Head End of an access network, the access network including a plurality of nodes which communicate with the Head End via at least one upstream channel and at least one downstream channel, the at least one downstream channel including a first downstream channel and a second downstream channel, the computer program product comprising:

a computer usable medium having computer code embodied therein, the computer readable code comprising:

computer code for receiving a first communication from the Head End via the first downstream channel, said first communication including a request to perform a dynamic channel change operation, said dynamic channel change (DCC) request including a request to perform a downstream channel change operation;

computer code for responding to the dynamic channel change request by implementing the downstream channel change operation;

computer code for receiving a second communication from the Head End via the second downstream channel; and

computer code for communicating with the Head End using data received on the second downstream channel.

59. (original) The computer program product of claim 58 wherein the computer code for implementing the dynamic channel change operation comprises computer code for switching from the first downstream channel to the second downstream channel to receive communications from the Head End.

60. (original) The computer program product of claim 58 further comprising computer code for communicating with the Head End using data received on the first downstream channel prior to performing the dynamic channel change operation.

61. (original) The computer program product of claim 59 wherein the computer code for implementing the dynamic channel change operation further comprises computer code for determining whether said second downstream channel is currently being used for receiving communications from the Head End.

62. (original) The computer program product of claim 59 further comprising computer code for transmitting a dynamic channel change response to the Head End in response to receiving the dynamic channel change request.

63. (original) The computer program product of claim 58, wherein the computer program product further comprises:

computer code for determining whether data transmitted at the Head End is successfully received on the second downstream channel; and

computer code for switching from the second downstream channel to the first downstream channel in response to a determination that data transmitted at the Head End can not be successfully received on the second downstream channel.

Claims 64-69 cancelled.

70. (original) A system for facilitating communications between a network node and a Head End of an access network, the access network including a plurality of nodes which communicate with the Head End via at least one upstream channel and at least one downstream channel, the at least one downstream channel including a first downstream channel and a second downstream channel, the system comprising:

- means for receiving a first communication from the Head End via the first downstream channel, said first communication including a request to perform a dynamic channel change operation, said dynamic channel change (DCC) request including a request to perform a downstream channel change operation;

- means for responding to the dynamic channel change request by implementing the downstream channel change operation;

- means for receiving a second communication from the Head End via the second downstream channel; and

- means for communicating with the Head End using data received on the second downstream channel.

Claim 71 cancelled.

72. (new) A method for facilitating communications between a network node and a Head End of an access network, the access network including a plurality of nodes which communicate with the Head End via at least one upstream channel and at least one downstream channel, the at least one downstream channel including a first downstream channel and a second downstream channel, the method comprising:

- communicating with a first node via the first downstream channel;

- transmitting a first request to the first node to perform a dynamic channel change operation, said first request including a request to perform a downstream channel change operation in order to cause the first node to switch from the first downstream channel to the second downstream channel;

- determining that the first node is able to receive communications from the Head End via the second downstream channel; and

- communicating with the first node via the second downstream channel.

73. (new) The method of claim 72 wherein said access network is a wireless network.

74. (new) The method of claim 72 wherein said access network is a cable network, said plurality of nodes are cable modems, and wherein said Head End comprises a Cable Modem Termination System (CMTS).

75. (new) The method of claim 72 further comprising performing a load balancing operation which includes transmitting the first request to the first node in order to cause the first node to switch from the first downstream channel to the second downstream channel.

76. (new) The method of claim 72 further comprising:
monitoring bandwidth-related information associated with the first and second downstream channels; and

performing a load balancing operation which includes transmitting the first request to the first node in order to cause the first node to switch from the first downstream channel to the second downstream channel;

wherein the load balancing operation is performed for the purpose of managing bandwidth resources on the first and second downstream channels.

77. (new) The method of claim 1 further comprising performing a load balancing operation which includes transmitting the dynamic channel change request to the first node in order to cause the first node to switch from the first downstream channel to the second downstream channel.

78. (new) The method of claim 1 further comprising:
monitoring bandwidth-related information associated with the first and second downstream channels; and

performing a load balancing operation which includes transmitting the dynamic channel change request to the first node in order to cause the first node to switch from the first downstream channel to the second downstream channel;

wherein the load balancing operation is performed for the purpose of managing bandwidth resources on the first and second downstream channels.

79. (new) A system for facilitating communications between a network node and a Head End of an access network, the access network including a plurality of nodes which

communicate with the Head End via at least one upstream channel and at least one downstream channel, the at least one downstream channel including a first downstream channel and a second downstream channel, the system comprising:

at least one processor;

at least one interface configured or designed to provide a communication link to at least one other network device in the data network; and

memory;

the system being configured or designed to communicate with a first node via the first downstream channel;

the system being configured or designed to transmit a first request to the first node to perform a dynamic channel change operation, said first request including a request to perform a downstream channel change operation in order to cause the first node to switch from the first downstream channel to the second downstream channel;

the system being configured or designed to determine that the first node is able to receive communications from the Head End via the second downstream channel; and

the system being configured or designed to communicate with the first node via the second downstream channel.

80. (new) The system of claim 79 wherein said access network is a wireless network.

81. (new) The system of claim 79 wherein said access network is a cable network, said plurality of nodes are cable modems, and wherein said Head End comprises a Cable Modem Termination System (CMTS).

82. (new) The system of claim 79 being further configured or designed to perform a load balancing operation which includes transmitting the first request to the first node in order to cause the first node to switch from the first downstream channel to the second downstream channel.

83. (new) The system of claim 79 being further configured or designed to:
monitor bandwidth-related information associated with the first and second downstream channels; and

perform a load balancing operation which includes transmitting the first request to the first node in order to cause the first node to switch from the first downstream channel to the second downstream channel;

wherein the load balancing operation is performed for the purpose of managing bandwidth resources on the first and second downstream channels.